

REMARKS

Applicants thank the Examiner for total consideration given the present application. Claims 1-20 were pending prior to the Office Action. Claims 21-22 have been added through this Reply. Therefore, claims 1-22 are currently pending. Claims 1, 7, 13, 14, 17, and 18 are independent. Claims 1-20 have been amended through this Reply. Applicants respectfully request reconsideration of the rejected claims in light of the amendment and remarks presented herein, and earnestly seek timely allowance of all pending claims.

SCOPE OF CLAIMS NOT NARROWED

Claims have been amended merely to address informal issues and to enhance clarity. It is intended that the scope of the claims remain substantially the same. Upon careful review, one would conclude that the amendments made to the claims do not add any new matter to the application and they are not narrowing, and are not made for a reason relating to patentability. Accordingly, it is submitted that these amendments do not give rise to estoppel and, in future analysis, claims 1-20 are entitled to their full range of equivalents.

CLAIM REJECTION - 35 U.S.C. § 101

Claims 17-20 stand rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Particularly, the Examiner alleges, “the claimed encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program.” *See Office Action, item 3.*

Although Applicants do not necessarily agree with the Examiner that claims 17-20 are non-statutory, claims 17 and 18 have been amended to recite, *inter alia*, “**A computer readable medium having stored thereon computer executable program, the computer program when executed causes a computer** to function as an electronic watermark embedding apparatus”

Thus, at least in view of this amendment it is respectfully submitted that claims 17-20 are statutory. Accordingly, it is respectfully requested to withdraw this rejection.

OBJECTION TO THE CLAIMS

Claims 7-12, 14, 16 and 18-20 are objected to because of minor informalities. *See Office Action, item 4.* Although Applicants do not necessarily agree with the Examiner regarding this objection, claims 7, 14, and 18 have been amended to further clarify the claimed invention that the correlation is between two different patterns of pixel value variation in the time direction. Accordingly, Applicants respectfully request that the objection to the claims be withdrawn.

35 U.S.C. § 112, 2ND PARAGRAPH REJECTION

Claims 1-6, 13, and 17 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite in that they fail to point out what is included or excluded by the claim language. Claims 8-12 and 15-16 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

Although Applicants do not necessarily agree with the Examiner's assertion of indefiniteness, Applicants have amended claims 1, 13 and 17 by deleting the phrase "and/or" to improve clarity.

Applicants have also amended claims 8-12 and 15-16 by replacing "embedding" with "detecting" to improve clarity.

Accordingly, Applicants respectfully request that the Section 112, second paragraph rejection of claims 1-6, 8-13, and 15-17 be withdrawn.

35 U.S.C. § 102 REJECTION – Noridomi

Claims 1-4, 6, 13, and 17-20 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Noridomi et al. (U.S. Patent Publication No. 2003/0210784 A1)[hereinafter "Noridomi"]. Applicants respectfully traverse this rejection.

For a Section 102 rejection to be proper, the cited reference must teach or suggest each and every claimed element. *See M.P.E.P. 2131; M.P.E.P. 706.02.* Thus, if the cited reference fails to teach or suggest one or more elements, then the rejection is improper and must be withdrawn.

In this instance, Noridomi fails to teach or suggest each and every claimed element.

For example, independent claim 1 recites, *inter alia*, “an embedding step of producing a variation between the pixel values of said adaptive pixels in one of said plurality of image regions and those of said adaptive pixels in an adjacent one of said plurality of image regions, and varying the pixel values of said adaptive pixels of said plurality of image regions in a time direction, according to a value of an embedded bit set of an electronic watermark, and of generating an electronic-watermark-embedded image by making the variation in the pixel values of said adaptive pixels vary step by step at a boundary between the two of said plurality of image regions and in the time direction so that the variation makes a slow transition.” *Emphasis added.*

It is respectfully submitted that Noridomi fails to teach or suggest the above-identified “embedding step” as recited in claim 1.

Noridomi discloses a conventional digital watermark-embedding method and apparatus that first calculates and retains a characteristic amount from an entered video signal by utilizing a characteristic amount calculating unit 101 and a characteristic amount retaining unit 102, respectively. Then, embedment intensity is calculated and retained by an embedment intensity calculating unit 103 and an embedment intensity retaining unit 104, respectively. Then, embedment information is embedded by a digital watermark embedding unit 105 as digital watermarks into the entered video signal in accordance with the retained embedment intensity of the previous frame or field that is located at a position earlier in time than a target image subject to digital watermark embedment. Finally, an output video signal having the digital watermarks embedded therein is produced. (*See Figs. 1 and 5.*)

Noridomi further discloses that the “characteristic amount” may refer to a value calculated on the basis of “pixel” values in an image at a certain area wherein the certain area is made up of “plural pixels”. (*See paragraph [0051].*)

Noridomi is distinguished from the claimed invention in that the digital watermark embedding unit 105 does not produce a variation between pixel values of adaptive pixels in one of the plurality of image regions and those of the adaptive pixels in an adjacent one of the

plurality of image regions, and does not varies the pixel values of the adaptive pixels of the plurality of image regions in a time direction, according to a value of an embedded bit set of an electronic watermark. According to the claimed invention, adaptive pixels are pixels that have a property of being difficult to visually recognize a variation in a pixel value from each of the plurality of image regions. Nowhere does Noridomi mentions that each of the “plural pixels” has a property of being difficult to visually recognize a variation in a pixel value from each of the plurality of image regions as recited in the claimed invention.

Further, although Noridomi discloses that the “characteristic amount” may refer to a value calculated on the basis of “pixel” values in an image at a certain area, nowhere does Noridomi teach or suggest that the output video signal is generated by making variation in the plural pixel values of the adaptive pixels vary step by step at a boundary between the two of the plurality of image regions and in the time direction. Rather, Noridomi merely teaches that the output from the embedment intensity retaining unit 104 is combined with embedment information and the entered video signal to output the video signal with digital watermarks embedded therein.

The Examiner appears to suggest that paragraphs [0101]-[0103], [0123]-[0131], and Figs. 5-8 of Noridomi discloses the above-identified claim feature. Indeed, the Examiner merely states, “when a region is embedded, every pixel including the pixels at the boundary in the region are modified; the embedding is done pixel by pixel (step by step) and suppressed degradation is a slow transition in time direction.” *See Office Action, section 9, page 10, 1st paragraph.*

Upon careful review of the above-identified sections of Noridomi, Applicants find no teaching or suggestion that the output video signal is generated by making variation in the plural pixel values of the adaptive pixels vary step by step at a boundary between the two of the plurality of image regions and in the time direction. Indeed, the entire reference is silent on a boundary between two image regions, let alone varying adaptive pixels at a boundary between the two image regions. Examiner’s mere conclusion that when a region is embedded, every pixel including the pixels at the boundary in the region are modified is not sufficient to establish a *prima facie* anticipation of the claim.

Therefore, for at least these reasons, independent claim 1 is distinguishable from Noridomi. Claims 2-4 and 6 depend from claim 1, directly or indirectly. Therefore, for at least the reasons stated with respect to claim 1 and further in view of novel features recited therein, claims 2-4 and 6 are also distinguishable from Noridomi. For example, with respect to claim 2, the entire reference is silent on any “phase polarity”, let alone “the pixel values of said adaptive pixels in said one of the plurality of image regions have a phase polarity different from those of said adaptive pixels in the adjacent one of said plurality of image regions”.

Independent claims 13 and 17 recite, *inter alia*, “an embedding processing unit for varying the pixel values of said electronic image on the basis of said electronic watermark information, and for generating an electronic-watermark-embedded image by making the variation in the pixel values of said adaptive pixels vary step by step at a boundary between the two of said plurality of image regions and in the time direction so that the variation makes a slow transition.”

At least for the same reasons stated with respect to claim 1 above, it is respectfully submitted that Noridomi fails to teach or suggest the above-identified feature of independent claims 13 and 17.

It is noted that although the Examiner includes claims 18-20 in this anticipation rejection, no analyses of how Noridomi anticipates these claims have been provided by the Examiner. Thus, it is understood that inclusion of claims 18-20 in this rejection is merely a typographical error committed by the Examiner.

Therefore, for at least the above reasons, it is respectfully requested to withdraw the rejection of claims 1-4, 6, 13, and 17-20, based on Noridomi.

35 U.S.C. § 103 REJECTION – Noridomi, Oostveen

Claim 5 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Noridomi, in view of admitted prior art.

Claims 7-12, 14-16, and 18-20 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Noridomi, in view of Oostveen et al. (WIPO Publication No. WO 03/055222 A2)[hereinafter "Oostveen"].

Applicants respectfully traverse these rejections.

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Additionally, there must be a reason why one of ordinary skill in the art would modify the reference or combine reference teachings to obtain the invention. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). There must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* The Supreme Court of the United States has recently held that the "teaching, suggestion, motivation test" is a valid test for obviousness, albeit one which cannot be too rigidly applied. *Id.* Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *Id.*

In regard to claim 5, it is respectfully submitted that this claim is distinguished from the applied prior art references at least by virtue of its dependency on claim 1 and further in view of novel features recited therein.

Independent claim 7 recites, *inter alia*, "An electronic watermark detecting method . . . producing a variation between pixel values in one of said plurality of image regions and those in an adjacent one of said plurality of image regions, and varying the pixel values of said adaptive pixels of said plurality of image regions in a time direction according to a value of the embedded bit set . . . detecting a correlation value showing a correlation between a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image

regions, which is caused by the electronic watermark to be embedded in said electronic image from which the electronic watermark is to be detected, and a pattern of the pixel value variation in the time direction of the one of said plurality of image regions of said electronic image from which the electronic watermark is to be detected”

Independent claim 14 recites, *inter alia*, “An electronic watermark detecting apparatus” and independent claim 18 recites, *inter alia*, “A computer readable medium” both of which include the above-identified claim feature of claim 7.

For at least for the same reasons stated with respect to claim 1 above, it is respectfully submitted that Noridomi fails to teach or suggest the above-identified feature of claims 7, 14 and 18 corresponding to the subject matter of “adaptive pixels” and the step, structure, or program code for “varying” the pixel values of the adaptive pixels.

Further, it is respectfully submitted that the imported reference, Oostveen, fails to fulfill the deficiency of Noridomi with respect to the subject matter of detection of a “correlation value”.

Oostveen merely discloses a conventional apparatus and corresponding method in which a watermark pattern is embedded with a “payload” in a time dependent information signal. Oostveen’s embedding method includes the following three steps: i) determining a number of robust signatures; ii) creating a payload; and iii) embedding the watermark pattern according to the payload in the information signal.

It is respectfully submitted that none of the above-identified steps of Oostveen teach or suggest a step or structure for detecting a correlation value as recited in claims 7, 14, and 18. According to the claimed invention, the detected correlation value shows a correlation between a pattern of the pixel value variation in the time direction which is produced between the pixel values in the one of said plurality of image regions and those in the adjacent one of said plurality of image regions, which is caused by the electronic watermark to be embedded in the electronic image from which the electronic watermark is to be detected, and a pattern of the pixel value variation in the time direction of the one of the plurality of image regions of the

electronic image from which the electronic watermark is to be detected. Oostveen simply fails to teach or suggest the above-identified claim feature.

The Examiner points to page 3, lines 5-7; page 5, lines 8-16 and Figs. 2 and 3 of Oostveen as disclosing the above-identified feature of claims 7, 14, and 18. The relied upon sections merely disclose how “robust signatures” are detected and how the “payload” is extracted. None of these steps teach or suggest the above-identified “correlation detection” step or structure of the claimed invention. As disclosed by Oostveen, robust signatures are being determined in a predetermined time interval of the information signal and the payload is extracted from the information signal using a signature S. Even if, *assuming arguendo*, Oostveen discloses a correlation between payload and signature value (which Applicants respectfully disagree), Applicants are not sure how this correlation relates to the above-identified “correlation detection” step or structure of the claimed invention. If this rejection is maintained, a detailed explanation by the Examiner is respectfully requested.

Therefore, for at least these reasons, independent claims 7, 14, and 18 are distinguishable from Noridomi and Oostveen. Claims 15-16 and 19-20 are distinguishable from Noridomi and Oostveen at least by virtue of their dependency on corresponding independent claim.

New Claims

New claims 21 and 22 are allowable at least by virtue of their dependency on claim 1.

CONCLUSION

All rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claims does not necessarily signify concession of unpatentability of the claim prior to its amendment.

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Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Ali M. Imam Reg. No. 58,755 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By  # 58,755
Michael K. Mutter
Registration No.: 29,680
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicants